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Addressing food security within a One Health approach: Integration of health and agriculture issues in the socio-ecosystem's dynamics

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In a global context of increasing urbanization and high population densities, growing intensification of trade and farming systems, drastic land use changes and biodiversity erosion, food security is directly related to complex health issues emerging at the Animal-Human-Environmental interface. Indeed, global changes affecting biodiversity, water management and agricultural production may unexpectedly increase the risk of zoonotic and environmental diseases transmission, threatening food security, with devastating socioeconomic and wellbeing impacts for the poorest communities. Assessing and managing these risks implies taking into account socioecological dynamics, in link with epidemiological patterns and public-health policies. For instance, epidemiological surveillance of animal diseases has to involve economic costs and social impacts associated to disease reporting for the farmers. As zoonotic diseases' spreading can be largely induced by important ecological modifications, it implies to deeply understand eco-epidemiological systems involving pathogens and their reservoir, vectors and hosts. It requests a holistic approach to understand the relationship between "Health" and "Agriculture" within the socio-ecosystem's dynamics. It implies to underline the institutional constraints and potential coordination gaps across sectors and institutions and across action levels. Such integrative approach at the interface between ecosystems and societies cannot be achieved spontaneously, and implies methodological guidelines for cross-sectorial and interdisciplinary collaborations.